

CHAPTER 14

Conclusion

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African agrifood systems face several challenges and threats, both emerging and existing, that require concerted action and targeted policymaking by African governments and their partners. The 2024 edition of the Annual Trends and Outlook Report (ATOR) explores the challenges posed by the climate crisis to agrifood systems and the opportunities offered by a transition to a bioeconomy to mitigate and adapt to the adverse impacts of climate change. This edition of the ATOR seeks to support the development and subsequent implementation of the Comprehensive Africa Agriculture Development Programme (CAADP) through the renewed and updated post-Malabo CAADP agenda.

The chapters presented in this report highlight priority areas of action, including the need for an integrated policy approach to mitigate and reverse the adverse effects of climate change. The chapters' authors also argue for expanded investment in the bioeconomy to leverage biotechnology, agricultural waste, and renewable resources and enhance value addition and diversify income streams for farmers and rural communities. More importantly, the report highlights the win-win relationship between climate action and the expansion of the bioeconomy, with lessons from the continent and beyond. It also stresses the urgency of accelerating the implementation of national, continental, and regional climate change initiatives.

Specifically, the following insights and recommendations are presented in this edition of the ATOR:

Convergence of climate change and bioeconomy agendas: The chapter examines the linkages between the two pressing agendas of climate change and the bioeconomy. It discusses the major research concern of crafting bioeconomy opportunities to help African countries build resilience against climate change and other environmental risks. The chapter stresses the co-benefits that countries can obtain if they are able to link these two agendas both systematically and structurally. Transitioning to a bioeconomy through clear strategies that are aligned with climate change targets and priorities requires upscaling investments in new technologies; creating a conducive environment to enable emerging companies to innovate; providing the training and education needed to drive a bioeconomy transition; and cooperating across borders, between regions, and with other continents, all while adapting to climate change.

Diverse impacts of climate change on macroeconomies and agrifood systems: The impacts of climate change on African economies are diverse, with far-reaching implications for economic growth, unemployment, and poverty and food insecurity. The ability of agrifood systems to prevent, anticipate, absorb, adapt, and transform rapidly in the face of climate shocks and stresses depends on their stage of development. The three types of agrifood systems, which include traditional, modern, and transitional systems, are affected by climate change differently and thus require different strategies to adapt to and mitigate adverse effects.

Technology-based measurement and analysis of greenhouse gas emissions: Measuring greenhouse gas (GHG) emissions and stocks has become an important policy agenda, not only to track progress in reducing GHG emissions committed under nationally determined contributions (NDCs) but also to strategize mitigation interventions in African agrifood systems. This report presents new insights on how to estimate the concentration of methane in the atmosphere using data from geographic information systems and remote-sensing satellites across the continent. The estimation shows that the amount of methane emitted varies significantly between countries, land uses, and seasons. The results further reaffirm the significant contribution of agriculture to methane emissions in Africa and the significant variation of atmospheric methane levels according to sowing, growing, and harvesting seasons, with more pronounced methane emissions during the harvesting season.

Spatial distribution of climate risk exposure and vulnerability: The analysis of environmental risks associated with climate change in Africa reveals significant and varied impacts across the continent, highlighting several critical areas that require immediate attention and strategic intervention. The evaluation indicates a notable increase in temperatures across various regions, particularly in southern, eastern, and parts of western Africa. Precipitation anomalies reveal areas with significant deviations from historical rainfall patterns. The assessment also reveals significant spatial variations and increased risk of vegetation cover depletion and incidence of droughts. Africa is the continent most vulnerable to health impacts from climate change, with 63 percent of the most at-risk countries located there, including Burundi, Eritrea, Ethiopia, Gabon, Madagascar, and Niger. The chapter also sheds light on vulnerability to climate change using case studies from Rwanda and Senegal. The two case studies reveal

that household vulnerability is largely attributable to the inability of households to adapt to climate shocks.

Sensitivity of agricultural commodities to climate stresses: The study presented in this chapter shows significant variation in the climate stress sensitivity of agricultural commodities, indicating that agricultural development efforts could be redirected toward crops that are less sensitive to shocks. The study found that some crops—including maize, sorghum, and soybeans—will see either a greater production boost or a lower loss in Africa than in the rest of the world. Groundnuts and rice will do modestly worse in Africa than in the rest of the world, but wheat and potatoes will suffer large losses that are much greater than those seen in the world as a whole. This finding raises crucial policy concerns about whether countries should focus on less-sensitive crops or invest more in sensitive crops and generate heat- and drought-tolerant varieties. However, policy choices between intensifying less-sensitive crops and/or adapting sensitive crops must consider the contexts, feasibility, and long-term strategic objectives of each country.

Effectiveness of climate adaptation actions in building agrifood system resilience: Consistent with global and continental initiatives, African countries have adopted several policies and strategies to combat the adverse effects of climate change. An assessment to explore the progress made in building resilience and the effectiveness of key climate-smart interventions across the continent reveals that, despite noteworthy advancements in developing climate change initiatives, African agriculture remains susceptible and insufficiently resilient to climate shocks. Approximately 4 out of 10 agricultural households in Africa remain vulnerable to climate disruptions. Moreover, the shift away from agriculture and the proportion of public expenditure allocated to the sector is weakly correlated with enhancements to agricultural resilience. Climate-smart interventions such as irrigation, sustainable land management, and agricultural insurance have long been advocated as ways to enhance climate adaptation, but they cover a small amount of arable land and few farmers, leading to insignificant impacts on resilience-building. Such limited coverage and insignificant effects are caused by challenges related to insufficient climate finance, inability to scale best practices, and vague and ineffective climate governance systems.

Circular bioeconomy to enhance nutrition outcomes: By fostering efficient resource use and waste reduction, a circular bioeconomy can contribute to more resilient food systems that support both people and the planet. It serves as a

promising strategy to address the complex challenges of nutrition and sustainability in Africa. The chapter assesses areas where the circular bioeconomy can be enhanced to overcome the challenges of malnutrition in the continent. The study reveals that in regions with high insect consumption, insect farmers should be encouraged to liaise with food producers to use any generated biowaste in their insect farming businesses. Aquaponics should be promoted in countries where fish farming is prevalent, such as Egypt, Ghana, Kenya, Nigeria, and Uganda. It can also be implemented in drought-prone regions of Africa to ensure water conservation and to boost the supply of nutrient-rich vegetables and fish. However, realizing this potential fully will require concerted efforts to overcome existing barriers, particularly in terms of policy, community engagement, and technological innovation.

Bioeconomy in global agrifood systems: The experiences of expanding the bioeconomy in selected African, Asian, and Latin American countries (Ghana, Namibia, Uganda, Thailand, and Brazil) clearly demonstrate the importance of elevating the bioeconomy as a top policy priority. These experiences also show the need to work across sectors and in continuous dialogue with all stakeholders, link bioeconomy initiatives with entrepreneurship and innovations in bio-based sectors, partner with international platforms and share knowledge with other countries and regions and improve coherence in the bioeconomy's sustainability objectives with climate and biodiversity and other multilateral agreements. The countries studied in this chapter tend to harness their natural resources and bioeconomies sustainably, albeit with different entry points aligned with their unique environmental challenges and economic structures. All of these countries illustrate a comprehensive and strategic pursuit of bioeconomy development, emphasizing sustainability, innovation, and cross-sectoral collaboration.

Potential of the bioeconomy for business in Africa: This featured article argues that countries with a vibrant bioeconomy would be likely to fully participate in and benefit from the Africa Continental Free Trade Area. Given its distributive nature, a bioeconomy will incentivize micro-, small-, and medium-size enterprises and the informal sector, which together make up a large part of the African economy. However, in order to fully exploit the business potential of a bioeconomy, African countries should develop bioeconomy clusters of innovation and entrepreneurial activities based on renewable biological resources and their unique needs and natural advantages.

Optimization of innovative climate financing mechanisms: The analysis presented in this chapter indicates that current climate finance flows to agrifood systems fall significantly short of meeting Africa’s requirements. The adaptation finance gap is particularly large for small-scale agrifood systems. Moreover, current climate finance flows inadequately address gender inequality and social exclusion. Given the existing structural, institutional, and technical barriers currently constraining the effective mobilization and deployment of climate finance for agrifood systems, it is critically important to focus on the application of blended finance instruments and their potential to catalyze private investment at scale by de-risking agrifood transactions or creating more attractive risk-adjusted returns that also deliver environmental and social benefits.

A just energy transition: A review of the challenges and pathways for transitioning from fossil fuels and biomass energy to sustainable renewable energy in Africa indicates that this shift, a critical strategy for addressing climate change and ensuring sustainable development, is best achieved through a “just” transition. This would address not only the issue of sustainability but also that of accessing affordable energy options and creating job opportunities for the continent’s marginalized populations. The chapter further stresses the importance of mini-grids and other decentralized energy solutions as vital technical pathways for achieving a just energy transition, particularly in remote and underserved regions.

Mainstreaming of the bioeconomy in the post-Malabo CAADP agenda: Africa, which has significantly lower carbon emissions than other regions, has a competitive advantage in developing a sustainable bioeconomy. This chapter explores the possibilities of mainstreaming the bioeconomy in Africa. The East African Community has set a good example by developing a dedicated regional bioeconomy strategy; other regional economic blocs should do the same. Ultimately, bringing together the regions’ bioeconomy strategies would reflect a true African bioeconomy. The continent should harness opportunities for collaboration and partnerships globally to advance its bioeconomy, while considering its unique needs, values, and competitive advantages. In advancing the bioeconomy, Africa should always uphold its cross-sectoral nature, although agriculture remains the primary custodian of the bioeconomy, as it contributes to 30 percent of the continent’s GDP.

Compliance with emerging environmental standards: A new trend is emerging as food supply chains move toward greater reporting of quantified

environmental impacts, such as carbon footprints. This featured article focuses on the rise of environmental impact reporting in agrifood systems, particularly in European markets, and its implication for future African agricultural exports. The article highlights key risks associated with environmental standard compliance, including the possibility of creating fragmented landscapes due to different initiatives and requirements, which could lead to confusion and high transaction costs. It is likely that the trend will disproportionately affect producers in low- and middle-income countries due to a lack of adequate conformity assessments and verifications.

Limited progress in advancing CAADP implementation: This chapter, which tracks the progress made by African countries against CAADP indicators, indicates that out of the 49 member states of the African Union that participated in the fourth Biennial Review in 2023, not a single country is on track to achieve the Malabo commitments by 2025. This result implies that concerted efforts will be required to strengthen CAADP implementation capacities at the country and regional levels, including through embedding national agriculture investment plans in country planning and budgeting cycles and enhancing interministerial and intercountry coordination. More importantly, it is crucial to understand how countries can best achieve the commitments under the CAADP through an in-depth analysis of factors that contribute to this limited progress.

The analyses presented in this report generally indicate that Africa is at a crossroads, whereby emerging challenges and opportunities are together shaping its sustainable development progress and economic growth potential. The ATOR calls for a systematic and well-designed strategic approach to address challenges while also tapping into opportunities. More importantly, the continent must build capacities to translate strategic choices and agendas into actions. The ongoing negotiations over the next 10-year CAADP implementation agenda present an opportune moment for African leaders to consider the insights and recommendations presented in this edition of the ATOR, as well as to align with emerging initiatives such as the implementation of countries’ United Nations Food Systems Summit national pathways, the revision of existing NDCs in 2025, and the hosting of the Global Bioeconomy Summit in October 2024, for the first time in Africa.